

In re Appl. No. 09/144,851

REMARKS

Claims 21-31 presently appear in this case. No claims have been allowed. The Official Action of February 20, 2001 has now been carefully studied. Reconsideration and allowance are respectfully urged.

Election/Restriction

Claims 11 and 20 have been cancelled, the restriction requirement having been made final.

Rejection under 35 U.S.C.112

Claims 1-10 and 12-19 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

This rejection is respectfully traversed. The present amendment cancels claims 1-10 and 12-19, so that this rejection is now moot.

With respect to claim 31, which contains the limitation of sterilizing and filtering, the Examiner alleges that this two step limitation was not found in the specification.

It should be noted that the sterilization and filtration claimed in claim 31 are supported by the specification at page 10, lines 2-6. The ultrafiltration removes bacteria, which results in sterilizing the solution. The ultrafiltration also removes other

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substances, e.g., pulp or albedo chips, if any, present in the solution. That is, ultrafiltration effects both sterilization and filtration.

The use of ultrafiltration in the present invention is very significant in producing a vinegar having a very good flavor and taste, because no heating of the vinegar is involved. Heating has been found to adversely affect flavor and taste of vinegars.

Claims 1-10 and 13-19 and 21-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

This rejection is respectfully traversed. The claims have been amended to recite that calcium carbonate is added to the juice prior to adjusting the pH thereof.

With respect to claim 29, it is clear from the wording of this claim that the juice is added during the middle of the acetic acid fermentation up to the end of the acetic acid fermentation.

#### Art Rejections

Claims 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seike in view of Jackson. Seike is said to teach producing vinegar from citrus fruits wherein the fruit juice is clarified with an enzyme, acid adjusted, sterilized, cooled, alcohol is added, inoculated with acetic acid bacteria and fermented, matured, filtered, and juice from unripe fruit is added.

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Seike is said to teach lowering the acidity, but there is no specific teaching of reducing the content of citric acid. Jackson is said to teach the reduction of acidity in grape juice or wine by adding calcium carbonate and ion exchange.

This rejection is respectfully traversed. The Examiner alleges that Seike teaches that lowering the acidity and that Jackson teaches lowering wine or grape juice acidity by adding calcium carbonate in order to modify the flavor of the final product. The present invention removes the citric acid from the juice in order to enable acetic acid fermentation. It is not the pH per se which interferes with acetic acid fermentation, but, specifically, citric acid. The specification of the present invention, at page 3, line 13 through page 4 line 7 and page 9, lines 7-17, makes it clear that it is specifically citric acid present in the fruit juices treated that interferes with acetic acid fermentation. When a flavorful acid citrus fruit juice is added during the latter half of the acetic acid fermentation, the juice can add its flavor to the vinegar without interfering with the acetic acid fermentation. That is, if the acetic acid fermentation is allowed to proceed about halfway to completion, fruit juice containing citric acid can be added to the fermenting solution without interfering with the acetic acid fermentation.

The important point of the present invention is not the pH per se, but the fact that the citric acid in the juice is reduced. This is not a problem in grape juice, so one skilled in

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the art would not look to raising the pH of grape juice to improve acetic acid fermentation. The problem with producing vinegars from citrus fruit juices is the presence of the citric acid, which interferes with the acetic acid fermentation required to produce vinegar. When the amount of citric acid in the juice is high, as exhibited by a pH of less than 3.0 (e.g., 2.5), acetic acid + fermentation/does not start and, obviously, cannot proceed. If acetic acid fermentation once starts at pH 3.0 or more and proceeds, it is possible to add a small amount of juice (0.1 to 10%) having from 3-8% citric acid to the acetic acid fermentation process between the middle of the fermentation process and the end of the fermentation process. This addition confers a mild flavor and taste on the finished vinegar product.

Seike never mentions citric acid content of the juice fermented, but only disclose that sodium citrate is added to adjust the pH value to 4.6. In Seike, the citric acid produces deterioration of taste. The present invention has been made to avoid the drawback of deteriorated taste in the Seike process. how?

There is nothing in Jackson that even relates to acetic acid fermentation. Therefore, there is no reason to combine Jackson with Seike.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seike in view of Jackson and further in view of Castillon et al. Castillon et al. are said to teach that ultrafiltration membranes are commonly used to purify vinegar.

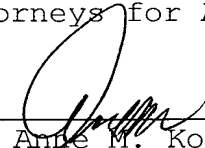
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This rejection is respectfully traversed. Neither Jackson nor Seike addresses the problem of the presence of citric acid in juice interfering with acetic acid fermentation. Therefore, the fact that Castillon et al. disclose that ultrafiltraion membranes are commonly used to purify vinegar adds nothing to the disclosures of Jackson and Seike.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,  
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21. (Amended) A method for producing a fruit vinegar comprising subjecting to acetic acid fermentation by acetic acid bacteria in the presence of ethanol one member selected from the group consisting of (a) and (b), wherein

(a) is at least one member selected from the group consisting of lemon juice, lime juice, yuzu juice, kabosu juice, sudachi juice, and shii kuwasa juice, wherein ~~each juice has a low citric acid content and said at least one member represents one member or a mixture of plural members and has~~ a pH value of 3.0 or more; wherein ~~said at least one member is~~ *improves*

(1) juice having ~~a naturally low citric acid content and~~ asaid pH value of 3.0 or more; *(06)*

(2) juice having ~~a low citric acid content of~~ asaid pH value of 3.0 or more ~~in which the~~ adjusted by reducing citric acid content ~~has been reduced,~~ or

(3) a mixture of (1) and (2); and

(b) a dilution of (a);

wherein the reducing of citric acid content ~~is reduced in~~

(2) has been effected by

(i) adding calcium carbonate to the juice to precipitate non-yet-pH-adjusted, one member or mixture of plural members or each of the plural members before preparing the mixture of plural members, and removing precipitated calcium citrate and

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~~removing the calcium citrate precipitate~~ therefrom or

(ii) contacting ~~the juice with resin to remove~~ resin with  
the non-yet-pH-adjusted, one members or mixture of plural members  
or each of the plural members before preparing the mixture of  
plural members, thereby removing citric acid therefrom.

25. (Amended) The method according to claim 21 wherein  
the reducing of citric acid content ~~is reduced in (2)~~ has been  
effected by reducing ~~the inherent~~ citric acid content ~~of each juice~~  
by from 50 to 100% by weight in (i) or (ii) in claim 21.